

## REMARKS/ARGUMENTS

### Notice of Paper Submission Under 37 C.F.R. 1.34(a)

The present paper is submitted under 37 CFR 1.34(a) and MPEP 405 by the undersigned Applicant's representative who is not the attorney of record in the present application. All communications regarding the present application should continue to be directed to the attorney of record, Ivan S. Kavrukov, Cooper & Dunham LLP, 1155 Avenue of the Americas, New York, NY 10036.

### 35 USC § 112

The Office Action rejected claims 1-13 under 35 USC § 112. Claim 1 has been amended in accordance with the recommendation of the Office Action in relation to the preamble. Claims 1 and 4 have also been amended to accommodate "vacuum" without it needing to be considered a "material" as per the Office Action. Antecedent basis in claims 8, 10, and 13 for "said upper material layers" has been provided by an amendment to claim 7, from which each of these claims depends, to be dependent on claim 2 instead of claim 1, to provide the proper antecedent basis.

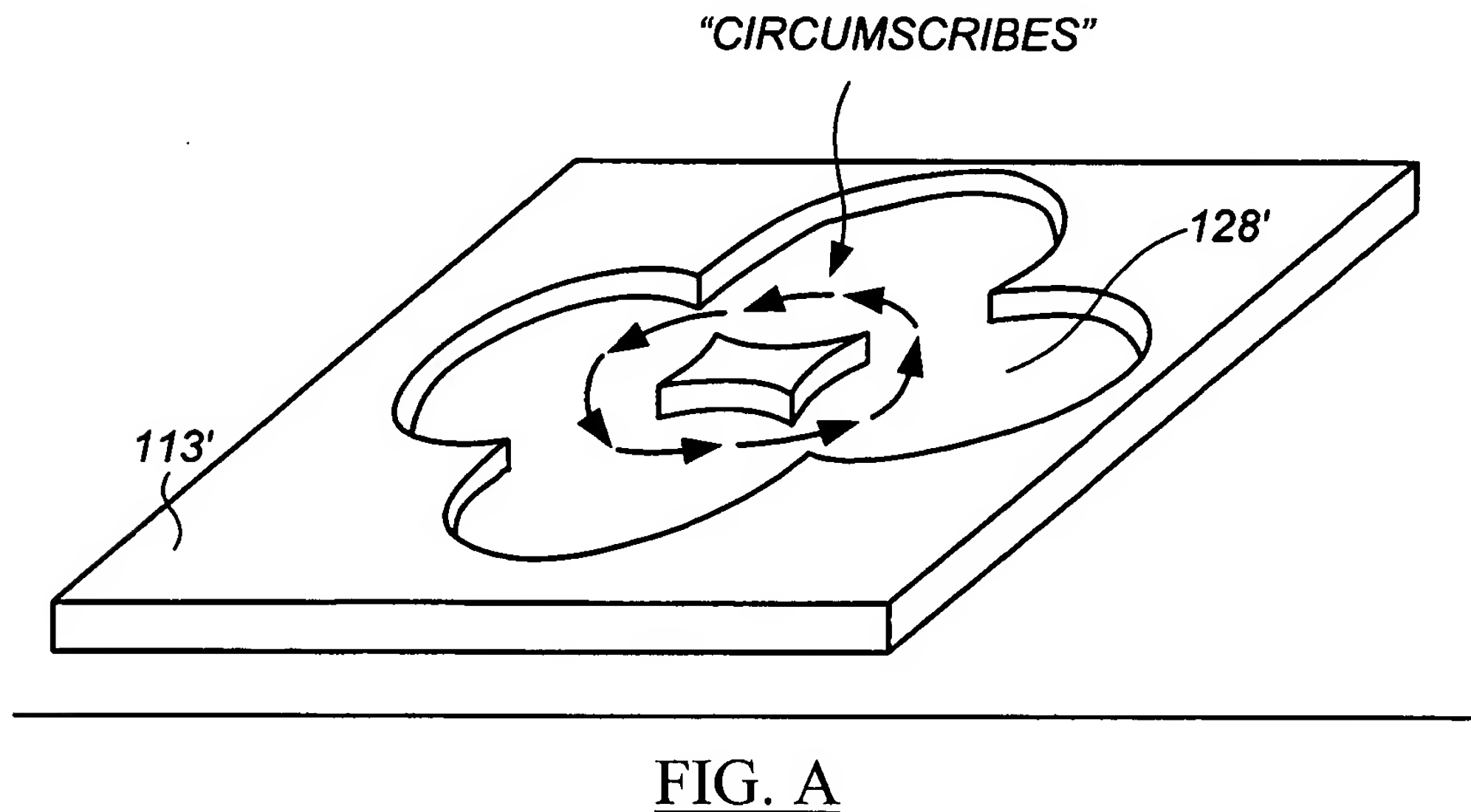
With regard to Claim 10, Applicants respectfully point out that it is indeed possible for the "first material layer" to be an "active layer" as recited. In such embodiment, the "current confinement structure" lies directly *underneath* the active layer, rather than *above* the active layer. Support in the instant specification can be found at page 9, lines 5-8, where it is stated, "In another preferred embodiment, the current confinement zone is on the 'n' side of the active region, the current confinement layer comprising an n-doped semiconductor material or an undoped semiconductor material."

### Claims 1 and 14

The Office Action rejected claims 1 and 7-21, which includes the two pending independent claims 1 and 14, under 35 USC § 102(e) as being anticipated by Lee et. al. (US 6,577,658). Applicants respectfully submit that Lee et. al. does not teach at least "a subsurface cavity *laterally circumscribing* said central column of semiconductor

material” as recited in claim 1, and likewise does not teach “a subsurface cavity *laterally circumscribing* said central current confinement zone” as recited in claim 14.

For clarity of presentation, two drawings (FIG. A and FIG. B) are presented in this paper below. It is to be appreciated that no new matter is added by virtue of these drawings. The structure of FIG. A is taken directly from FIG. 3 of the instant application (with certain elements and number references removed for clarity, and with a directional line and the term “circumscribed” added for this explanation). FIG. B is taken directly from the cited Lee et. al. reference (with section lines Y-Y’ and Z-Z’ superimposed here for purposes of explanation).



As illustrated in FIG. A, the subsurface cavity 128’ “laterally *circumscribes*” the central column of material, that is, goes all the way around the central column at each possible cross-section passing through the central column. In contrast, as understood, the holes 216 in Lee et. al. do not form a cavity that laterally circumscribes a central column, because there is at least one cross-section (such as Z-Z’ in FIG. B) passing through the central column where the solid material has not been removed. Stated another way, as understood, the vertical holes 216 shown in the profile view of FIG. 2 of Lee et. al. will

appear as such for cross-sections Y-Y' but would not appear as such for cross-sections Z-Z'. Instead, for cross-sections Z-Z' they would just appear to be solid material.

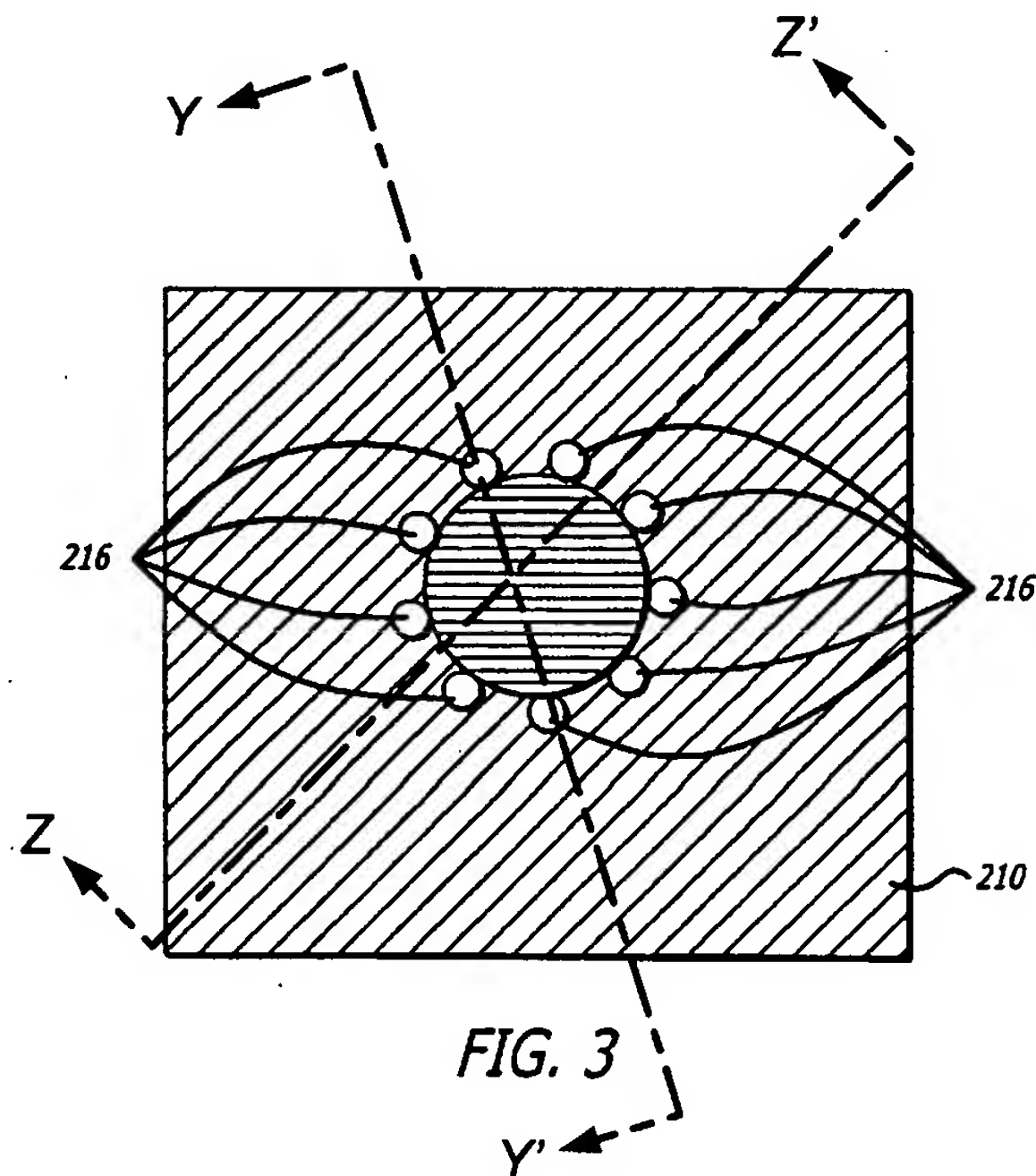


FIG. B

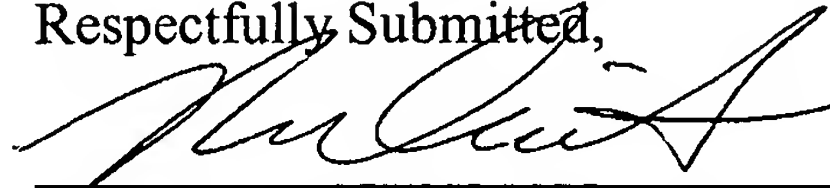
As understood, no other embodiments discussed in Lee et. al., including those discussed with respect to FIG. 4A and 4B having “*partial ridges 416*” (col. 5, line 50) would be able to provide a subsurface cavity that laterally “*circumscribes*” the central column as recited in claim 1 and claim 14. Accordingly, it is respectfully submitted that neither independent claim 1 or independent claim 14 is anticipated by Lee et. al.

Claims 2-13 and 15-21 are submitted to be allowable for at least the reason that they depend from an allowable base claim. Although there are other sound reasons why claims 1-21 are allowable over the art of record, it is not necessary to discuss those reasons at this time in view of the above discussion.

The Office is hereby authorized to charge any fees that may be required in connection with this amendment and to credit any overpayment to Deposit Account No. 50-3014, which is the deposit account of the undersigned Applicant's representative.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the attorney of record, Ivan S. Kavrukov, at (212)-278-0400. Entry of this amendment and allowance of this application are respectfully requested.

Respectfully Submitted,



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